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(FILE 'HOME' ENTERED AT 00:10:58 ON 05 JUN 2008)

FILE 'REGISTRY' ENTERED AT 00:11:46 ON 05 JUN 2008

L1 34 S LUMINOL OR ISOLUMINOL
L2 4 S 521-31-3 OR 3682-14-2 OR 29415-71-2 OR 66612-29-1
L3 13 S L1 NOT (ALUMINUM OR POLYMER OR BENZAZAL? OR AZALUMI? OR
DIAZALUMI? OR OXATHIALUM?)
SEL NAME L2
L6 1 S HYDROGEN PEROXIDE/CN
L7 3 S (SODIUM HYDROXIDE OR POTASSIUM HYDROXIDE OR SODIUM CARBONATE)
FILE 'CA' ENTERED AT 00:29:30 ON 05 JUN 2008
L8 7248 S L5 OR E1-16 (ABEI OR ISOLUMINOL OR LUMINOL OR N-(4-AMINOBUTYL)-
N-ETHYLISOLUMINOL OR 3-AMINOPHTHALHYDRAZIDE OR 3-AMINOPHTHALIC
ACID HYDRAZIDE OR 3-AMINOPHTHALIC HYDRAZIDE OR 4-(DIETHYLAMINO)
PHTHALHYDRAZIDE OR 4-(DIETHYLAMINO)PHTHALIC 1,2-HYDRAZIDE OR 4-
DIETHYLAMINOPHTHALIC ACID HYDRAZIDE OR 4-LUMINOL OR 5-AMINO-1,4-
DIHYDROXYPHTHALAZINE OR 5-AMINO-2,3-DIHYDRO-1,4-PHTHALAZINEDIONE
OR 6-AMINO-2,3-DIHYDRO-1,4-PHTHALAZINEDIONE)
L9 211636 S L6 OR HYDROGEN PEROXIDE OR H2O2 OR HOOH
L10 589737 S L7 OR(SODIUM OR POTASSIUM OR NA OR K)(A)(HYDROXIDE OR OH)OR NAOH
OR KOH OR NACO3 OR SODIUM CARBONATE
L11 319120 S (BLOOD OR HEMOGLOBIN OR HEMIN OR PEROXIDASE)(5A)(DETECT? OR
DETERMIN? OR MEASUR? OR MONITOR? OR FIND? OR SEARCH? OR ASSAY? OR
ANALY? OR SENSE# OR SENSING OR TEST? OR IDENTIF? OR EXAMIN?)
L12 43118 S FORENSIC? OR CRIME OR HUNT?
L13 67 S L8 AND L12
L14 1250 S L8 AND L11
L15 2672 S L8 AND L9
L16 449 S L8 AND L10
L17 207 S L15 AND L16
L18 643 S L14 AND L15-16
L19 1399 S L8(3A)L9-10
L20 306 S L18 AND L19
L21 1761 S L11(3A)(TRACE OR RESIDUE)
L22 12 S L18 AND L21
L23 372 S L18 AND (HEMAGLOBIN OR BLOOD OR HEMIN OR HEMATIN)
L24 176 S L20 AND L23
L25 628 S L8(A)L9-10
L26 137 S L18 AND L25
L27 71 S L18 AND(MM OR MMOL?)
L28 543 S L13,L17,L22,L24,L26-27
L29 400 S L28 AND PY<2003
L30 5 S L28 NOT L29 AND PATENT/DT AND PY<2005
L31 329 S L29 NOT(FLUORESCENCE QUENCHING OR MILK OR OXIDASE OR DOT OR SOL
GEL)
L32 10 S L29 NOT L31 AND(LUMINOL HYDROGEN OR HEMIN)
L33 318 S L31 NOT(CHLORAMINE OR POLYMORPH? OR OVULAT? OR ENZYM?
CHEMILUMIN?)
L34 304 S L33 NOT(COSMET? OR FELDSPAR OR HONEYBEE OR ELISA OR COAGULATION
FACTOR)
L35 319 S L30,L32,L34

=> d bib,ab 135 1-319

L35 ANSWER 62 OF 319 CA COPYRIGHT 2008 ACS on STN
AN 130:222709 CA
TI Luminosity, my dear Watson, luminosity!-or, are those bloodstains?
AU Burke, Barbara A.; Golestaneh, Kamran; Samson, Helene; Mell, Galen P.
CS Chemistry Department, California State Polytechnic University, Pomona,
Pomona, CA, 91768, USA
SO Journal of Chemical Education (1999), 76(1), 65-67
AB Procedures are described which have been used by forensic scientists to
detect the presence of latent bloodstains using luminol. This
demonstration was developed as part of an ongoing effort to minimize the
amt. of hazardous waste generated. Two-reservoir spray bottle using
hydrogen peroxide (solution A) and luminol - carbonate buffer (solution
B) as the two solutions.

L35 ANSWER 78 OF 319 CA COPYRIGHT 2008 ACS on STN
AN 128:164732 CA
TI Enhanced sanitation control of medical and dental tools by the chemical
luminescent indicator luminol
IN Spiekermann, Markus
PA Spiekermann, Markus, Germany
SO Ger. Offen., 6 pp.
PI DE 19633808 A1 19980226 DE 1996-19633808 19960822
PRAI DE 1996-19633808 19960822
AB The invention concerns the enhanced sanitation control of medical and
dental tools by checking for blood residues after sterilization and
disinfection using the chem. luminescent indicator luminol. The reagent
is prepd. from four components before the test and is either sprayed
onto the tool or the tool is immersed into the reagent; the luminescent
spots will indicate where to proceed with cleaning. Thus the components
are aq. sodium hydroxide, a 30% hydrogen peroxide soln., luminol in an
alk. aq. soln., and water. Sensitivity of detection can be increased
and documentation can be carried out by using a photog. film.

L35 ANSWER 97 OF 319 CA COPYRIGHT 2008 ACS on STN
AN 124:311802 CA
OREF 124:57663a,57666a
TI Chemiluminescent analysis method for quantitating peroxidase
IN Iwata, Masako; Hayashi, Takashi; Yamaki, Mitsuo
PA Hitachi Chemical Co Ltd, Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
PI JP 08051997 A 19960227 JP 1994-161638 19940714
PRAI JP 1994-161638 A 19940714
JP 1994-127186 19940609
AB Peroxidase is quant. detd. by anal. using a reagent soln. contg.
oxidizing agent, and a reagent soln. contg. chemiluminescent substance
and sensitivity-enhancing agent. The chemiluminescent substance is
luminol analog, and oxidizing agent is hydrogen peroxide. The method is
useful for immunoassay, clin. diagnosis, biochem. anal., DNA probe
method, etc. In example, H2O2 soln. and mixt. contg. luminol and 4-[4'-
(2'-methyl)thiazolyl]phenol were prepd. and used in immunoassay with
peroxidase-labeled anti-endothelin antibody or monoclonal antibody.

L35 ANSWER 189 OF 319 CA COPYRIGHT 2008 ACS on STN
 AN 101:143259 CA
 OREF 101:21556h,21557a
 TI Chemiluminescence sensitization
 PA Hitachi, Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 5 pp.
 PI JP 59077354 A 19840502 JP 1982-187433 19821027
 PRAI JP 1982-187433 19821027
 AB An improvement in the detection sensitivity of a chemiluminescent substance (e.g. luminol) was obtained by adding phenylalanine to a NaOH soln. contg. luminol, H₂O₂, and NaOCl.

L35 ANSWER 224 OF 319 CA COPYRIGHT 2008 ACS on STN
 AN 90:99681 CA
 OREF 90:15709a,15712a
 TI Method and apparatus for eliminating luminol interference material
 IN Jeffers, Eldon; Thomas, R. R.
 PA United States National Aeronautics and Space Administration, USA
 SO U. S. Pat. Appl., 31 pp. Avail. NTIS.
 PI US 876440 A0 19780623 US 1978-876440 19780209
 US 4176007 A 19791127
 PRAI US 1978-876440 A 19780209
 AB A method and app. are described for removing porphyrins from a fluid sample which are unrelated to the no. of bacteria present in the sample and prior to combining the sample with luminol reagent to produce a light reaction. The method involves a preincubation of the sample with a dil. concn. of H₂O₂ which inactivates the interfering sol. porphyrins. Further, by delaying taking a light measurement for a predetd. time period after combining the H₂O₂-treated water sample with a luminol reagent, the luminescence produced by the reaction of the luminol reagent with ions present in the soln., being short lived, will have died out so that only porphyrins within the bacteria which have been released by rupturing the cells with the NaOH in the luminol reagent, will be measured. The measurement thus obtained can then can related to the concn. of live and dead bacteria in the fluid sample.

L35 ANSWER 231 OF 319 CA COPYRIGHT 2008 ACS on STN (102b)
 AN 85:30563 CA
 OREF 85:4969a,4972a
 TI Rapid identification of bacteria using chemiluminescence
 IN Witz, Samuel; Hartung, Walter H.
 PA Akzona Inc., USA
 SO U.S., 6 pp.
 PI US 3959081 A 19760525 US 1975-562068 19750326
 PRAI US 1975-562068 A 19750326
 AB Microorganisms contg. hemoprotein substances with Fe porphyrin prosthetic groups can be specifically identified and differentiated by the characteristic time curves of chemiluminescence emission produced in the presence of luminol and H₂O₂. Thus, 0.2 ml luminol reagent contg. luminol 0.33, EDTA 5.00, and NaOH 20.00 g/l. and 0.2 ml H₂O₂ reagent contg. H₂O₂ 0.5% and acetophenetidin 0.0002% (1 mmol/l luminol, 250mmol/l NaOH, 74 mmol/l H₂O₂) were mixed by injection into a test tube contg. 1 ml of a microbial suspension, and the light output was

monitored by an RCA 1P 21 photomultiplier tube connected to a Tektronic type 541A oscilloscope. *Serratia marcescens* at 2.6×10^5 cells/ml produced an emission curve with a time to max. luminescence of 8 sec and time to 50% decay of 21-4 sec; values for *Escherichia coli* at 4.1×10^4 cells/ml were 5 and 13 sec, resp.; for *Bacillus cereus* at $8-25 \times 10^3$ cells/ml the values were 16-24 and >30 sec, resp. Interference by metal ions was not a problem since most metal ions produced emission curves with max. outputs at ≤ 0.2 sec.

L35 ANSWER 234 OF 319 CA COPYRIGHT 2008 ACS on STN (102b)

AN 83:172240 CA

OREF 83:26967a,26970a

TI Detection of various α -substituted nitriles and gem-halonitroalkanes by chemiluminescence

AU Yurow, Harvey W.; Sass, Samuel

CS Chem. Lab., Edgewood Arsenal, Aberdeen Proving Ground, MD, USA

SO Analytica Chimica Acta (1975), 77, 324-6

AB The nucleophilic reaction of OOH^- with α -substituted nitriles and gem-halonitroalkanes in alk. soln. gives a hydroperoxide which oxidizes luminol to a chemiluminescent species, enabling the detection of the nitriles and halonitroalkanes. A 0.2 ml aq. sample (1.0 mg/ml) was introduced into a 1-ml spectrofluorimetric cell. The intensity of chemiluminescent light was measured at 410 nm from the moment when 0.2 ml 0.0025M luminol in 0.20M NaOH and 0.2 ml 0.30% H_2O_2 in 0.002M Na_4L , where $\text{H}_4\text{L} = \text{EDTA}$, were added simultaneously (1.25 mmol/l luminol, 100mmol/l NaOH, 44 mmol/l H_2O_2). The relative light intensity, cor. for mol. wt. differences, is listed for 17 compds. As the no. of Cl groups in the mol. increases and the no. of NO_2 groups decreases, the chemiluminescence intensity decreases while its duration increases.

L35 ANSWER 247 OF 319 CA COPYRIGHT 2008 ACS on STN

AN 78:90496 CA

OREF 78:14422h,14423a

TI Oxidation of luminol by a stabilized solution of hemin

AU Brabec, F.

CS Ustav Fys. Pevnych Latek, Prague, Czech.

SO Collection of Czechoslovak Chemical Communications (1972), 37(5), 1605-6

AB The intensity of light emitted during the reaction of luminol with oxidants can be considerably increased by addn. of metal ions or complexes. The effects of H_2O_2 and of stabilized hemin in their broader concn. ranges on the chemiluminescence of luminol in a system of 3-aminophthalic acid hydrazide- NaOH - H_2O - H_2O_2 -stabilized soln. of hemin was studied. The dependence of radiation emitted during the reaction on the H_2O_2 concns. was linear for hemin-Cu catalyst at 10^{-8} - 10^{-4} M H_2O_2 . At 10^{-4} - 10^{-1} M H_2O_2 the increase of radiation emitted diminished with an increase in H_2O_2 concn. The optimum concn. of H_2O_2 was 10^{-2} - 10^{-1} M.

L35 ANSWER 253 OF 319 CA COPYRIGHT 2008 ACS on STN

AN 70:104706 CA

OREF 70:19539a,19542a

TI Luminol chemiluminescence in forensic medicine and toxicology. II.
Effect of fetal blood on the luminol reaction
AU Weber, Karlo; Palmovic, V.; Spasic, P.; Bastic, J.
CS Inst. Gerichtl. Med., Jugoslav. Akad. Wiss., Zagreb, Yugoslavia
SO Deutsche Zeitschrift fuer die Gesamte Gerichtliche Medizin (1968), 64
(2), 158-64
AB Two modified procedures for the development of luminol (3-aminophthalic
hydrazide) chemiluminescence are described which distinguish fetal from
adult blood by time-dependent photoelec. recording of the intensity of
chemiluminescence. Solns. of both fetal and adult hemoglobin act as
activators of the reaction. The method of distinguishing Hb-F from Hb-A
with a luminol reagent in the presence of NaOH was statistically highly
significant. The specific behavior of fetal blood in the activation of
the luminol reaction is correlated with the slow speed of fetal
hemoglobin denaturation in the presence of alkali. These tests are a
new variant in observations of Hb denaturation using chemiluminescence
for detection.

L35 ANSWER 254 OF 319 CA COPYRIGHT 2008 ACS on STN

AN 70:82758 CA

OREF 70:15487a,15490a

TI Chemiluminescence of the system luminol-sodium hydroxide-hydrogen
peroxide-ozone

AU Bersis, D. S.; Nikokavouras, J.

CS Nucl. Center "Democritos", Aghia Parakevi, Greece

SO Zeitschrift fuer Physikalische Chemie (Muenchen, Germany) (1968), 62(1-
4), 152-8

AB The luminescence of alk. solns. of luminol contg. H₂O₂ treated with
ozone is proportional to the luminol concn., independent of pH, and
shows a max. at 10 mg. H₂O₂/ml.

L35 ANSWER 261 OF 319 CA COPYRIGHT 2008 ACS on STN

AN 67:114271 CA

OREF 67:21523a,21526a

TI Application of chemiluminescence of luminol in judicial medicine and
toxicology. I. Detection of block traces

AU Weber, Karlo

CS Inst. Gerichtl. Med. Kriminalistik, Zagreb, Yugoslavia

SO Deutsche Zeitschrift fuer die Gesamte Gerichtliche Medizin (1966), 57,
410-23

From: CZ 1967, (29), Abstr. No. 2077

LA German

AB The blood concn. can be detd. photoelec. by the luminol reaction.
Intensity-time curves are set up from which the max. luminescence
intensity and the total light can be obtained as a measurement of the
blood concn. Blood in traces of dry blood and fresh blood can be
detected up to a diln. of 1:10⁷ with a modified reagent. A luminol
reagent contg. Na₂CO₃ instead of NaOH gave a different intensity-time
curve with dry blood than with fresh blood. CO-contg. dry blood traces
just as fresh blood display only low luminescence intensity.

L35 ANSWER 266 OF 319 CA COPYRIGHT 2008 ACS on STN

AN 64:79709 CA

OREF 64:14966b-c

TI Inhibition of chemiluminescence of luminol by α -amino acids, and the chemiluminescence determination of traces of α -amino acids

AU Ponomarenko, A. A.; Amelina, L. M.

CS Trade Econ. Inst., Lvov

SO Zhurnal Obshchei Khimii (1965), 35(12), 2252-3

LA Russian

AB Amino acids (10-3-10-4M) are detd. by their redn. of the intensity of luminescence of luminol (0.002M in 0.1M NaOH), in the presence of 0.001M CuSO₄ in 1% NH₄OH and 0.06M H₂O₂. The chemiluminescence is inhibited in the following descending order: L-histidine, glycine, DL-serine, DL-norvaline, DL-valine, DL-aspartic acid, DL-tryptophan, DL-norleucine, DL-leucine, DL-methionine, DL- α -alanine, L-cysteine, DL- β -alanine, L-lysine, and L-arginine.

L35 ANSWER 269 OF 319 ? CA COPYRIGHT 2008 ACS on STN

AN 62:10515 CA

OREF 62:1960f-g

TI Improved reagent for luminol test

AU Arima, Takashi

CS Prefect. Police Headquarters, Fukushima, Japan

SO Kagaku Keisatsu Kenkyusho Hokoku (1964), 17(1), 9-14

AB The compn. of the new reagent is luminol 0.1 g. (4.2 mmol/l), 10% NaOH 10.0 ml. (185 mmol/l), 3% H₂O₂ 25.0 ml. (163 mmol/l), H₂O 100.0 ml. The intensity of luminescence thereby was 7.7- and 2.7-fold higher than that of W. Specht reagent I and II, resp. The self-luminescence of the reagent was negligible and the stability was higher.

L35 ANSWER 272 OF 319 CA COPYRIGHT 2008 ACS on STN

AN 61:36904 CA

OREF 61:6439f-g

TI Catalytic activities of copper-bipyridyl (bip) chelates for the chemiluminescence of Luminol

AU Ojima, Heijiro

CS Aichi Gakugei Univ., Okazaki, Japan

SO Nippon Kagaku Zasshi (1963), 84(11), 909-13

AB Copper(II)-bipyridyl chelates are excellent catalysts for the chemiluminescence of Luminol-H₂O₂ system in alk. soln. The catalytic activities of the chelates increase in the order [Cu bip]⁺⁺ > [Cu bip₂]⁺⁺ > [Cu bip₃]⁺⁺. They are the most active at pH 12.0-12.5, and become inactive at pH 13.5, above which these chelates are converted into dihydroxo complexes. Mixed complexes of the approx. compn. Cu(LuO)(OH) bip H₂O.1/5 [Cu(OH)(OH₂)bip]X (LuO = Luminol anion; X = NO₃, Cl, or 1/2 SO₄) were isolated from solns. contg. [Cu bip₁₋₃] X₂, OH⁻, and Luminol, the suspensions of which in dil. NaOH or Na₂CO₃ exhibit strong luminescence by action of H₂O₂. On the basis of these and related data, the mechanism of the catalytic action was discussed.

L35 ANSWER 285 OF 319 CA COPYRIGHT 2008 ACS on STN

AN 54:66586 CA

OREF 54:12774h-i,12775a

TI The effect of foreign matters on the chemoluminescence of luminol. I.
 The effect of porphyrin on the luminescence of luminol
 AU Dezelic, M.; Mehmedic, M.
 CS Univ. Sarajevo, Yugoslavia
 SO Bull. soc. chimistes repub. populaire Bosnie et Herzegovine (1958), 7,
 55-62

AB The luminescence of mixts. contg. luminol 4×10^{-3} , NaOH 4×10^{-1} , H₂O₂
 1.76×10^{-1} , and K₄Fe(CN)₆ 4×10^{-2} mole/l. was inhibited upon addn. of
 solns. contg. from 5.4×10^{-7} to 2.1×10^{-5} mole/l. of etioporphyrin,
 mesoporphyrin dimethyl ester, or 2,3,5,8-tetramethyl-1,4-dipropyl-6,7-
 dipropionic acid-porphin and from 6.21×10^{-2} to 2.48×10^{-1} mole/l.
 pyridine. Pyridine alone also had an inhibitive effect.

L35 ANSWER 291 OF 319 CA COPYRIGHT 2008 ACS on STN
 AN 50:40946 CA
 OREF 50:7932e-h

TI Detection with luminol in paper chromatography
 AU Moucka, V.; Parizek, R.
 CS Prum. skola chem., Pardubice-Rybitvi, Czech.
 SO Chemicke Listy pro Vedu a Prumysl (1956), 50, 312-14
 AB Peroxidases prepd. according to Jermyn (C.A. 46, 9138e) were detected by
 spraying the chromatograms with a soln. contg. in 100 ml. 0.5 g. luminol
 (I, 28.2 mmol/l), 50 ml. 0.5% NaOH (62.5 mmol/l), 15 ml. 3% H₂O₂ (13.2
 mmol/l), and water. Similarly Fe⁺⁺⁺, Bi⁺⁺⁺ and Hg⁺⁺ were detected.
 Fe⁺⁺⁺ and Bi⁺⁺⁺ strongly enhance the luminescence, while Hg⁺⁺ supresses
 it entirely. The purity of com. prepn. of I was detd. by paper
 chromatography besides pure 3-aminophthalhydrazide (II) and 3-
 nitrophthalhydrazide in a solvent system BuOH, AcOH, water (4:1:5) or in
 cyclohexanol satd. with water and by spraying the dry paper with alk.
 soln. of hemin and 3% soln. of H₂O₂. The older method of prepg. pure II
 (cf. C.A. 28, 1684.6) was improved by suspending 88.5 g. crude II in 100
 g. 5% NaOH, pptg. II with AcOH, dissolving the dried product (m. 316°)
 in 3 l. concd. HCl and refluxing 20 min. with 1% charcoal. Cryst.
 II.HCl obtained on cooling the filtrate was dissolved in 400 ml. 10%
 NH₄OH under slight warming and the white product was pptd. from the
 filtrate with 10% AcOH, yielding 44.7 g. pure II m. 324-7° (cor.).

L35 ANSWER 304 OF 319 CA COPYRIGHT 2008 ACS on STN
 AN 37:23283 CA
 OREF 37:3781c-f

TI The chemical luminescence test for blood. Forensic and clinical
 applications
 AU McGrath, John
 SO British Medical Journal (1942), 1942, II, 156-7
 AB Forensic and clinical applications of the Specht test (C. A. 31, 3821.3)
 for the identification of suspected stains are considered. If a mist of
 a soln. of 3-aminophthalic acid-hydrazide-HCl (I) (either of the 2
 following solns. may be used: (a) I 1 g., Na₂O₂ 5 g., distd. water 1000
 ml., or (b) I 1 g., Na₂CO₃ 50 g., H₂O₂ (10 vol.) 50, distd. water 1000

ml.) falls on a stain contg. hematin a marked bluish white luminescence appears which is clearly visible in the dark and can readily be photographed. Very fresh blood stains contg. little hematin show little luminescence; the older the stain the greater the proportion of hematin present and the more marked the light effect. The reaction is specific. There is no reaction with serum, bile, sputum, pus, seminal stains, pleural fluid, feces, earth, fresh or rotting vegetable material, various paints, oils, metals, wood, wax, shoe polish or various other substances. It is not suggested, however, that at present the test be used as a final specific test for blood. The reaction can also be carried out in a test tube or on a slide. If a soln. or suspension contains fresh blood, a few drops of NaOH soln. (about 30%) are first added to form hematin. Warming increases the brilliance of the luminescence but shortens the duration. A clear pos. reaction with blood can be obtained in dilns. over one in a million.

L35 ANSWER 309 OF 319 CA COPYRIGHT 2008 ACS on STN

AN 33:59344 CA

OREF 33:8524h-i

TI Detection of blood by means of chemiluminescence

AU Proescher, Frederick; Moody, A. M.

SO Journal of Laboratory and Clinical Medicine (1939), 24, 1183-9

AB The procedure is described for the detection of traces of blood by the luminescence produced when 3-aminophthalic hydrazide (luminol) in alk. soln. in the presence of small amt. of H₂O₂ is applied to the specimen. Pos. tests were obtained from blood stains on material which had been exposed to sunlight and air for 3 yrs. It is preferable to transform the hemoglobin in fresh blood into hematin for the test. Hematin can be detected in a diln. of 1:100,000,000.

L35 ANSWER 310 OF 319 CA COPYRIGHT 2008 ACS on STN

AN 33:26158 CA

OREF 33:3697a-i

TI The chemiluminescence of 3-aminophthalhydrazide

AU Stross, Fred H.; Branch, Gerald E. K.

SO Journal of Organic Chemistry (1938), 3, 385-404

AB The intensities, rates of change of intensity, and total light given out from various mixts. of K₃Fe(CN)₆, H₂O₂, luminol (I) and NaOH were studied under varying conditions of alky. and concn. by use of the flow method devised by Roughton (cf. Bray and Livingston, C. A. 22, 2869, and Hartridge and Roughton, C. A. 21, 343). The glow was measured with a photoelec. cell (Vistron 75A) connected to a balanced circuit and galvanometer. The exptl. results are tabulated. The results show that I is reduced in steps, and that a 3-step stage of oxidation is reached long after the glow has ceased, but as long as ferricyanide ion is present the oxidation continues, though slowly, and may exceed the 4-unit stage, namely, the formation of 3-aminophthalic acid and N. Contradicting the mechanism suggested by Albrecht (C. A. 23, 4889), in which hydrolyzes to 3-H₂NC₆H₃(CO₂H)₂ and N₂H₂, and then reacts with the latter to form I and activate luminescing I, the expts. seem to show that II is present even after the glow has ceased. H₂O₂ does not have any marked effect on the rate of oxidation of I, but greatly increases the amt. of light emitted from a given amt. of I. Addn. of hydroquinone

to an alk. mixt. of I and H₂O₂ extinguished the glow, which returned on long standing; similar addn. to an alk. soln. of I and a mixt. of K₃Fe(CN)₆ and H₂O₂ produced a faint glow. The former suggests that in quenching the glow the hydroquinone is used up, while in the latter instance it acts on a luminescent step due chiefly to H₂O₂, but does not protect I from oxidation by K₃Fe(CN)₆. H₂O₂ increases the chance of I oxidizing with luminescence; OH and ferricyanide ions decrease it, while the ferrocyanide ion has little or no effect on this chance. More and less luminescent reactions are competing for a product of a preliminary reaction; the following scheme represents the suggested mechanism: The intermediate is a one-unit oxidation product of I, C₈H₆O₂N or its assocd. or ionized form, while the final substance is a 2-unit oxidation product of I, i. e., II or The kinetics of the reactions involved is discussed in detail with derivations of the various rate constants. The constancy of the rate constants from the exptl. data confirms the theory of the above mechanism. The brightness is not quite proportional to the concn. of I and is quenched by inhibitors, which are used up, suggesting a chain reaction. This chain mechanism seems to apply to the after rather than the preliminary reaction. The product of the preliminary one-unit oxidation is a free radical which might well block a luminescent chain mechanism and would be greater with increase in concn. of I. A more complete, though speculative, mechanism is also proposed. A study of the temp. effect indicates that the chance of a I mol. luminescing is increased in cooling. This may be due to the favoring of an after reaction with H₂O₂ over that with ferricyanide, or to an increase of the chance of an activated mol. losing its energy as light rather than heat.

L35 ANSWER 315 OF 319 CA COPYRIGHT 2008 ACS on STN

AN 31:27540 CA

OREF 31:3821b-d

TI The chemiluminescence of hemin as a means of finding and recognizing blood traces of forensic importance

AU Specht, W.

SO Angew. Chem. (1937), 50, 155-7

AB Many tests showed that old blood traces, especially dried blood, can be detected with ease and reliability by the use of 3-aminophthalic acid hydrazide in a soln. contg. Na₂CO₃ and H₂O₂. This soln. can be applied with an atomizer, and the presence of blood traces is indicated by a distinct blue chemiluminescence, which is caused by hematin. The detection is a specific one for blood and the reaction does not take place with: saliva, urine, pus and other body excretion, milk, coffee spots or starch, org. and inorg. dyes, fabrics, leather, skin, fungi, oils, waxes, earth, stone, wood, metals and especially rust, grass, leaves, etc. Photographs of luminescent blood spots are shown.

=> log y

STN INTERNATIONAL LOGOFF AT 01:40:11 ON 05 JUN 2008